

AMENDMENTS TO THE CLAIMS

Please replace the present claims with the following amended set of claims.

Listing of Claims:

1. (Original) A microfluidic device for assaying a liquid biological sample of 10 μ L or less, said device including at least one space in which a reagent or conditioning agent is immobilized on a substrate, the improvement comprising a microstructure disposed in said space for directing said sample over said substrate containing said reagent in a predetermined uniform manner and purging air from said space.
2. (Original) A microfluidic device of Claim 1 wherein said microstructure is a uniform array of posts having more than one column of posts disposed at a right angle to the flow of said sample.
3. (Original) A microfluidic device of Claim 2 wherein said microstructure has a second column of posts adjacent to a first column of posts, said posts of said second column positioned between the posts of said first column, thereby preventing said sample liquid from flowing in a straight line through said space.
4. (Original) A microfluidic device of Claim 2 wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of the sample liquid onto said substrate.
5. (Original) A microfluidic device of Claim 1 wherein said microstructure is positioned above said substrate.
6. (Original) A microfluidic device of Claim 1 wherein said microstructure contacts said substrate.

7. (Original) A microfluidic device of Claim 1 wherein said microstructure is a ramp for directing flow upward or downward to a substrate disposed on a plateau.

8. (Original) A microfluidic device of Claim 1 wherein said microstructure is a groove or weir disposed perpendicularly to the direction of sample flow.

9. (Original) A method of distributing a liquid sample of 10 μ L or less uniformly over a reagent or conditioning agent immobilized on a substrate in a well of a microfluidic device comprising passing said sample through a microstructure, said microstructure facilitating movement of said sample in a predetermined uniform manner onto said substrate and purging air from said well.

10. (Original) A method of Claim 9 wherein said microstructure is a uniform array of posts disposed at a right angle to sample flow.

11. (Original) A method of Claim 10 wherein said microstructure has a second column of posts adjacent to a first column of posts, said posts of said second column positioned between the posts of said first column, thereby preventing said liquid sample from flowing in a straight line over said substrate.

12. (Original) A method of Claim 10 wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of said liquid onto said substrate.

13. (Original) A method of Claim 9 wherein said microstructure is positioned above said substrate.

14. (Original) A method of Claim 9 wherein said microstructure contacts said substrate.

15. (Original) A method of Claim 9 wherein said microstructure is a ramp for directing flow upward to a substrate disposed on a plateau.

16. (Original) A method of Claim 9 wherein said microstructure is a groove or weir disposed perpendicularly to the direction of sample flow.

17. (Cancelled)

18. (Cancelled)

19. (Cancelled)

20. (Cancelled)

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

25. (Cancelled)

26. (Cancelled)

27 (New) A method of distributing a liquid sample of 10 μ L or less uniformly over a reagent or conditioning agent immobilized on a substrate in the well of a microfluidic device comprising.

(a) passing said liquid over an inlet passageway containing grooves or weirs disposed perpendicularly to the flow of the sample liquid, and thereafter;

(b) passing said sample liquid through a uniform array of microposts disposed in said well to distribute said liquid sample uniformly over said reagent or conditioning agent and purging air from said well.

28. (New) A method of Claim 27, wherein said uniform array of microposts has at least two columns of said microposts disposed at a right angle to the flow of said sample, the second of said two columns of microposts positioned between the posts of said first column, thereby preventing said sample liquid from flowing in a straight line through said well.

29. (New) A method of Claim 27, wherein said posts have at least one wedge-shaped cutout aligned vertically to said substrate for facilitating movement of said liquid into said substrate.

30. (New) A method of Claim 27 wherein said microposts are positioned above said substrate.

31. (New) A method of Claim 27 wherein said microposts contact said substrate.

32. (New) A method of Claim 27, wherein said inlet passageway comprises a ramp for directing flow upward or downward to said substrate disposed on a plateau.